Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1–77. (Canceled)

78. (Currently Amended) A method of making an ~~heterogeneous building block~~ array, the method comprising:

applying building block molecules to a solid support in a plurality of regions ~~spots~~, the regions each being a contiguous portion of the surface of the solid support and each having the shape of a spot, ~~the spots~~ the regions comprising 2, 3, 4, 5, or 6 different building block molecules;

independently and covalently coupling the different building block molecules to the solid support in the regions ~~spots~~; wherein:

a first region comprises a first combination of building block molecules and a second region comprises a second combination of building block molecules;

the regions of immobilized building block molecules on the solid support are a heterogeneous building block array; and

each building block molecule independently is of the formula:

$$\text{framework-(recognition element)}_n$$

in which:

n=1, 2, or 3; each recognition element is independently covalently coupled to the framework; and the framework comprises a functional group effective for covalent coupling to a support or a linker;

the framework is alkyl, substituted alkyl, cycloalkyl, heterocyclic, substituted heterocyclic, aryl alkyl, aryl, heteroaryl, or heteroaryl alkyl; substituted with 1 to 4 functional groups;

the functional groups independently being carboxyl, amine, hydroxyl, phenol, carbonyl, or thiol;

each recognition element is independently a 1-12 carbon alkyl, substituted alkyl, cycloalkyl, heterocyclic, substituted heterocyclic, aryl alkyl, aryl, heteroaryl, or heteroaryl alkyl moiety; substituted with a group with a property of positive charge, negative charge, acid, base, electron acceptor, electron donor, hydrogen bond donor, hydrogen bond acceptor, free electron pair, π electrons, charge polarization, hydrophilicity, or hydrophobicity;

with the proviso that one or more recognition elements, the framework, or one or more recognition elements and the framework comprises an amino acid.

~~wherein one or more of the building blocks comprises one or more amino acids.~~

79. (currently amended) The method of claim 78, wherein ~~one or more of~~ the amino acid~~s~~ comprises naturally occurring amino acid or synthetic amino acid.

80. (currently amended) The method of claim 78, wherein ~~one or more of~~ the amino acid~~s~~ comprises an amino acid with a functional group on its side chain.

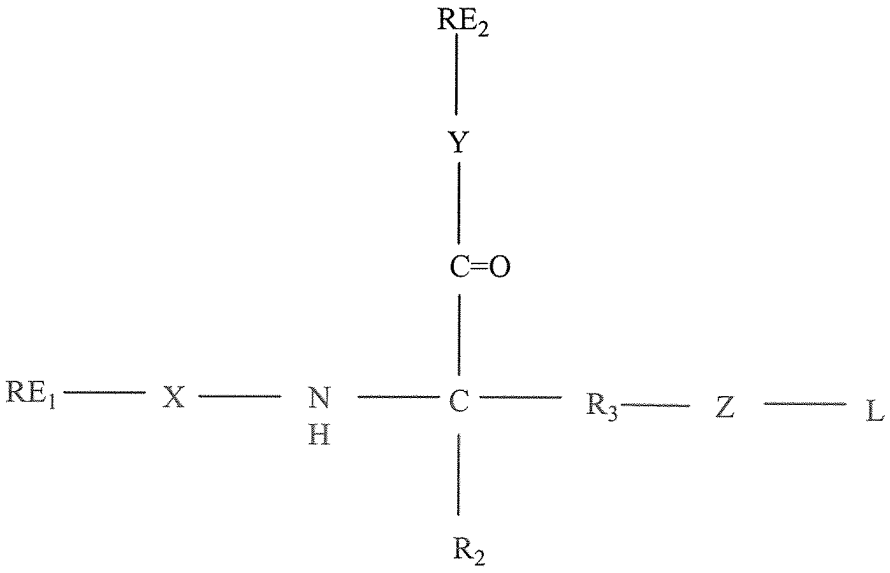
81. (Previously presented) The method of claim 80, wherein the functional group comprises amine, hydroxyl, phenol, carboxyl, thiol, thioether, or amidino group.

82. (currently amended) The method of claim 78, wherein ~~one or more of~~ the amino acid~~s~~ comprises serine, threonine, tyrosine, aspartic acid, glutamic acid, asparagine, glutamine, cysteine, lysine, arginine, histidine.

83. (canceled)

84. (currently amended) The method of claim 78, wherein ~~one or more of~~ the amino acid~~s~~ comprises derivatized amino acid.

85. (currently amended) The method of claim 84, wherein ~~one or more~~ of the derivatized amino acid~~s~~ has the formula:



in which:

X is absent or C=O;

Y is absent, NH, or O; Z is O;

R_2 is H or CH_3;

R_3 is CH_2 or CH_2-phenyl;

RE_1 is B1, B2, B3, B4, B5, B6, B7, B8, B9, A1, A2, A3, A4, A5, A6, A7, A8, or A9;

RE_2 is A1, A2, A3, A4, A5, A6, A7, A8, A9, B1, B2, B3, B4, B5, B6, B7, B8, or B9;

L is $(CH_2)_nCOOH$, with n=1-16;

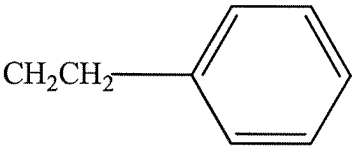
A1 is

;

A2 is

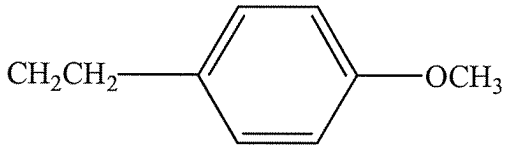
$CH_2CH(CH_3)_2$;

A3 is



;

A4 is



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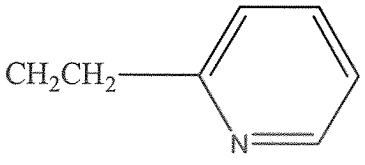
A5 is



;

A6 is

CH_2CH_2-O-CH_3;

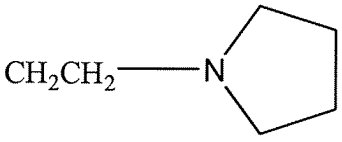
A7 is

CH_2CH_2-OH;

A8 is

CH_2CH_2-NH-C(O)CH_3;

A9 is

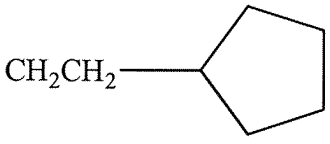


;

B1 is

CH_3;

B2 is



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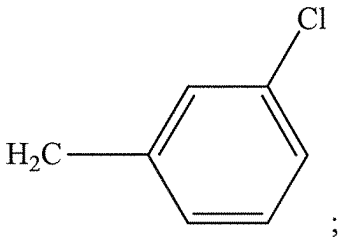
B3 is



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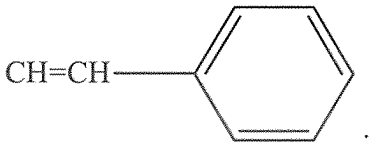

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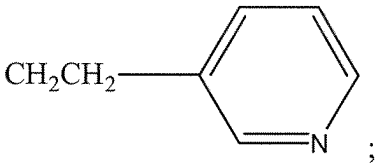

;

B6 is

CH_2-S-CH_3;

B7 is

$CH_2CH(OH)CH_3$;

B8 is

$CH_2CH_2C(O)$-NH_2; and

B9 is

$CH_2CH_2CH_2$-N-$(CH_3)_2$.

86. (Currently Amended) The method of claim 78, wherein one or more of the building block molecules consists of one or more amino acids

87. (canceled)

88. (Currently Amended) The method of claim [[87]] 78, wherein the framework is a naturally occurring amino acid or synthetic amino acid.

89. (Previously presented) The method of claim 88, wherein the framework is a naturally occurring amino acid, and the naturally occurring amino acid is serine, threonine, tyrosine, aspartic acid, glutamic acid, asparagine, glutamine, cysteine, lysine, arginine, histidine.

90. (Currently Amended) The method of claim [[87]] 88, wherein the ~~first or second~~ recognition element comprises amino acid side chain functional group.

91. (Previously presented) The method of claim 90, wherein the functional group comprises amine, hydroxyl, phenol, carboxyl, thiol, thioether, or amidino group.

92-130. (Canceled)